

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
14 February 2002 (14.02.2002)

PCT

(10) International Publication Number
WO 02/012501 A3

(51) International Patent Classification⁷: C12N 15/13,
C07K 16/28, C12N 15/79, 5/10, A61K 39/395, C07K
16/42, G01N 33/50, 33/577, A61P 37/00

(21) International Application Number: PCT/US01/24784

(22) International Filing Date: 7 August 2001 (07.08.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/223,363 7 August 2000 (07.08.2000) US
09/920,267 1 August 2001 (01.08.2001) US

(71) Applicant: CENTOCOR, INC. [US/US]; 200 Great Valley Parkway, Malvern, PA 19355 (US).

(72) Inventors: GILES-KOMAR, Jill; 31 Blakely Road, Downingtown, PA 19355 (US). HEAVNER, George; 6 Oak Glen Drive, Malvern, PA 19355 (US). SNYDER, Linda; 1795 Honeysuckle Lane, Pottstown, PA 19465 (US). TRIKHA, Mohit; 278 Orchard Road, Paoli, PA 19301 (US).

(74) Agents: JOHNSON, Philip, S. et al.; One Johnson & Johnson Plaza, New Brunswick, NJ 08933 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

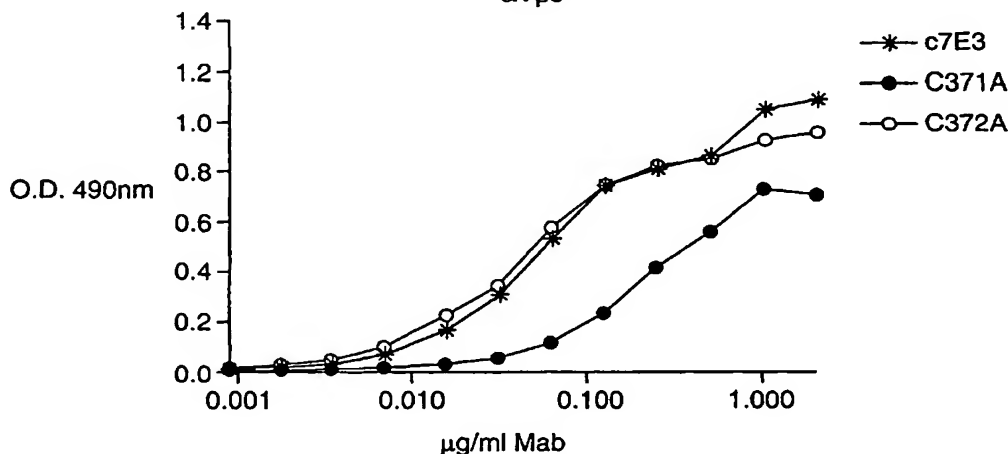
— with international search report

(88) Date of publication of the international search report:
3 January 2003

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ANTI-DUAL INTEGRIN ANTIBODIES, COMPOSITIONS, METHODS AND USES

Binding of GenPharm Mabs to $\alpha V\beta 3$



(57) Abstract: The present invention relates to at least one novel anti-dual integrin antibodies, including isolated nucleic acids that encode at least one anti-dual integrin antibody, dual integrin, vectors, host cells, transgenic animals or plants, and methods of making and using thereof, including therapeutic compositions, methods and devices.

WO 02/012501 A3

INTERNATIONAL SEARCH REPORT

 International Application No
 PCT/US 01/24784

A. CLASSIFICATION OF SUBJECT MATTER

 IPC 7 C12N15/13 C07K16/28 C12N15/79 C12N5/10 A61K39/395
 C07K16/42 G01N33/50 G01N33/577 A61P37/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

BIOSIS, EMBASE, CHEM ABS Data, WPI Data, PAJ, EPO-Internal, SEQUENCE SEARCH

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 00 31248 A (SMITHKLINE BEECHAM CORPORATION) 2 June 2000 (2000-06-02) the whole document	1-101
A	S. TAM ET AL.: "Abciximab (ReoPro, chimeric 7E3 Fab) demonstrates equivalent affinity and functional blockade of glycoprotein IIb/IIIa and alpha (v)beta3 integrins." CIRCULATION , vol. 98, no. 11, 15 September 1998 (1998-09-15), pages 1085-1091, XP000882678 abstract	1-101

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the International filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the International filing date but later than the priority date claimed

- *T* later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- * & * document member of the same patent family

Date of the actual completion of the International search

10 September 2002

Date of mailing of the International search report

23/09/2002

Name and mailing address of the ISA

 European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax (+31-70) 340-3016

Authorized officer

Nooij, F

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 01/24784

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	M. TRIKHA ET AL.: "A potential new application for a cardiovascular drug: Role for ReoPro (Abciximab), an inhibitor of gpIIb/IIIa and alphaVbeta3 integrins, as an anti-cancer agent." PROCEEDINGS OF THE AMERICAN ASSOCIATION FOR CANCER RESEARCH, vol. 41, March 2000 (2000-03), page 577 XP002212901 USA abstract #3678 ----	1-101
A	S. SUZUKI ET AL.: "cDNA and amino acid sequences of the cell adhesion protein receptor recognizing vitronectin reveal a transmembrane domain and homologies with other adhesion protein receptors." PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE U.S.A., vol. 83, no. 22, November 1986 (1986-11), pages 8614-8618, XP002212902 Washington, DC, USA abstract figure 2 ----	1-101
A	M. LEHMANN ET AL.: "A monoclonal antibody inhibits adhesion to fibronectin and vitronectin of a colon carcinoma cell line and recognizes the integrins alphaVbeta3, alphaVbeta5, and alphaVbeta6." CANCER RESEARCH, vol. 54, 15 April 1994 (1994-04-15), pages 2102-2107, XP002103619 Baltimore, MD, USA abstract ----	1-101
A	WO 00 44404 A (CHILDREN'S HOSPITAL LOS ANGELES) 3 August 2000 (2000-08-03) claims -----	1-101

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 01/24784

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
Although claims 12-15, 32-35, 52-55, 72-75, 92-95 are directed to a method of treatment of the human/animal body or a diagnostic method practised on the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International Application No
PCT/US 01/24784

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
WO 0031248	A	02-06-2000	US	6160099 A	12-12-2000
			EP	1135477 A1	26-09-2001
			WO	0031248 A1	02-06-2000
<hr/>					
WO 0044404	A	03-08-2000	AU	2737900 A	18-08-2000
			BR	0007875 A	13-02-2002
			CN	1355711 T	26-06-2002
			CZ	20012793 A3	13-03-2002
			EP	1150714 A2	07-11-2001
			NO	20013750 A	28-09-2001
			WO	0044404 A2	03-08-2000
<hr/>					